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IN THE CLAIMS

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1. Method of communicating between communication stations adapted to communicate with each other when at least one of said communication stations supplies a synchronisation signal, said station then functioning in base station mode and the stations not supplying a synchronisation signal but synchronising on a synchronisation signal sent by a station functioning in base station mode then functioning in mobile station mode,

- wherein the method includes a request operation during which a first base station transmits, to a mobile station, a request for the storage in memory and transmission, by said mobile station, of a message to a communication station for which the message is intended and which is not synchronised with said first base station.

2. Communication method according to Claim 1, further including a response operation during which said mobile station transmits, to said first base station, a message accepting or refusing transmission of said message to the message destination station.

3. Communication method according to Claim 2, wherein, when said mobile station transmits an acceptance message to the first base station, it next performs a detachment operation, during which said mobile station desynchronises from the first base station.

4. Communication method according to Claim 3, wherein, following said detachment operation, said mobile station performs an attachment operation during which it synchronises with a second base station, without the two base stations synchronising with each other.

5. Communication method according to Claim 4, wherein, following said attachment operation, the mobile station performs a second transmission operation, during which said mobile station transmits said message to the message destination station.

6. Communication method according to Claim 1, wherein, as a preliminary to said request operation, the first base station performs an

operation of selecting, from a location table, the mobile station which is the destination of the request to store in memory and to transmit.

7. Communication method according to Claim 2, wherein, if during the response operation the mobile station transmits to the first base station a message refusing transmission of said message, the base station performs a new operation of selecting, from a location table, a mobile station which is the destination of the request to store in memory and to transmit.

8. Communication method according to Claim 6, wherein, as a preliminary to the selection operation, the first base station performs an operation of determining synchronisation or not of the message destination station with the first base station and, only when the message destination station is not synchronised with the first base station, an operation of selecting a mobile station which is the destination of the request to store in memory.

9. Communication method according to Claim 8, wherein, during the operation of determining the synchronisation or not of the message destination station with the first base station, the base station performs an operation of reading, in a location table, the operating mode of the message destination station, and

- when the message destination station is functioning in base station mode, it is determined that the message destination station is not synchronised with the first base station, and

- when the message destination station is functioning in mobile station mode, during said reading operation, the base station performs an operation of reading the identity of a base station with which the message destination station is synchronised and, when the base station with which the message destination station is synchronised is not the first base station, it is determined that the message destination station is not synchronised with the first base station.

10. Communication method according to Claim 1, wherein, during the request operation, the first base station transmits, to the mobile station, the content of the message to be transmitted to the message destination station.

11. Communication method according to Claim 1, wherein, during the request operation, the first base station transmits, to the mobile station, an identifier for the message destination station.

12. Communication method according to Claim 1, wherein, during the request operation, the first base station transmits, to the mobile station, an identifier for the first base station.

13. Communication method according to Claim 1, wherein, during the request operation, the first base station transmits, to the mobile station, an identifier for a source station which supplies, to the first base station, the message to be transmitted to the message destination station.

14. Method of communicating between communication stations adapted to communicate with each other when at least one of said communication stations supplies a synchronisation signal, said station then functioning in base station mode and the stations not supplying a synchronisation signal but synchronising on a synchronisation signal sent by a station functioning in base station mode then functioning in mobile station mode, wherein the method includes:

- a first operation of receiving a message, during which a mobile station synchronised with a first base station receives a message coming from said first base station,

- an operation of detachment and attachment, during which said mobile station synchronises with a second base station, without the two base stations synchronising with each other, and

- a second transmission operation, during which said mobile station transmits said message to said second base station.

15. Communication method according to Claim 14, wherein, following the message reception operation and as a preliminary to the detachment and attachment operation, the mobile station performs an availability test during which it determines whether a communication would be interfered with by the detachment and attachment operation and, if during the availability test it is determined that no communication would be interfered with by a detachment and attachment operation, said detachment and attachment operation is performed.

16. Communication method according to Claim 15, wherein, during the availability test, the mobile station determines whether or not it is participating in a current communication and, if it is participating in a current

communication, it is determined that a communication would be interfered with by a detachment and attachment operation.

17. Communication method according to Claim 14, wherein, following the message reception operation and as a preliminary to the detachment and attachment operation, the mobile station performs an availability test during which it determines whether or not a quantity of energy available to it is greater than a predetermined quantity and, if during the availability test it is determined that the quantity of energy is greater than said predetermined quantity, said detachment and attachment operation is performed.

18. Communication method according to Claim 14, wherein, as a preliminary to said detachment and attachment operation, the mobile station performs a response operation during which said mobile station transmits, to said first base station, a message accepting transmission of said message.

19. Communication method according to Claims 1 and 14, wherein said message represents traffic between the mobile stations synchronised on the first base station and the first base station.

20. Communication method according to Claim 19, wherein the message destination station is the second base station, and the second base station performs, on receipt of said message, an operation of determining the total traffic during which it determines whether or not the sum:

- of the traffic between the mobile stations synchronised on the first base station and the first base station, on the one hand, and
- the traffic between the mobile stations synchronised on the second base station and the second base station, on the other hand,

is less than a predetermined value.

21. Communication method according to Claim 20, wherein when, during the total traffic determination operation, it is determined that the sum:

- of the traffic between the mobile stations synchronised on the first base station and the first base station, on the one hand, and
- the traffic between the mobile stations synchronised on the second base station and the second base station, on the other hand,

is less than said predetermined value, one of the base stations performs an operation of switching into mobile station mode and synchronises on the other base station.

22. Communication method according to Claim 19, wherein the message destination station is the second base station, and on reception of said message, the second base station performs a first operation of determining the distribution of traffic between the two base stations during which the second mobile station determines whether or not:

- on the one hand, the traffic between the mobile stations synchronised on the first base station and the first base station is less than a predetermined value, and

- on the other hand, the traffic between the mobile stations synchronised on the second base station and the second base station is greater than a predetermined value.

23. Communication method according to Claim 22, wherein when, during the first traffic distribution determination operation, it is determined that:

- the traffic between the mobile stations synchronised on the first base station and the first base station is less than a predetermined value, on the one hand, and

- the traffic between the mobile stations synchronised on the second base station and the second base station is greater than a predetermined value, on the other hand,

the second base station performs an operation of seeking a communication to be transferred during which the second mobile station determines whether at least one of the communications between mobile stations which are synchronised with the second base station can be transferred to the first base station.

24. Device for communication between communication stations adapted to communicate with each other when at least one of said communication stations supplies a synchronisation signal, said station then functioning in base station mode and the stations not supplying a synchronisation signal but synchronising on a synchronisation signal

transmitted by a station functioning in base station mode then functioning in mobile station mode,

wherein the device comprises, in a first base station, request means adapted to transmit, to a mobile station, a request for the storage in memory and transmission, by said mobile station, of a message, to a message destination communication station which is not synchronised with said first base station.

25. Communication device according to Claim 24, further comprising, in the first base station:

- a memory containing a location table representing communication stations, and

- a selection means, adapted to select, from said location table, the mobile station which is the destination of the request to store in memory and to transmit.

26. Communication device according to Claim 25, wherein, when a selected mobile station transmits to the first base station a message refusing transmission of the said message, the selection means is adapted to select, from said location table, a new mobile station which is the destination of the request to store in memory and to transmit.

27. Communication device according to Claim 25, further comprising means for determining the synchronisation or not of the message destination station with the first base station, and only when the message destination is not synchronised with the first base station, the selection means effects a selection, from said location table, of a mobile station which is the destination of the request to store in memory.

28. Communication device according to Claim 27, wherein:

A) the location table contains, at least for each mobile station, information representing the identity of a base station with which the mobile station is synchronised, and

B) the synchronisation determination means is adapted to read, from the location table, the operating mode of the message destination station, and:

- when the message destination station is functioning in base station mode, to determine that the message destination station is not synchronised with the first base station, and

- when the message destination station is functioning in mobile station mode, the synchronisation determination means is adapted to read, from said location table, the identity of a base station with which the message destination station is synchronised and, when the base station with which the message destination station is synchronised is not the first base station, it is determined that the message destination station is not synchronised with the first base station.

29. Communication device according to Claim 24, wherein the request means is adapted to transmit, with said request, to the mobile station, the content of the message to be transmitted to the message destination station.

30. Communication device according to Claim 24, wherein the request means is adapted to transmit, with said request, to the mobile station, an identifier for the message destination station.

31. Communication device according to Claim 24, wherein the request means is adapted to transmit, with said request, to the mobile station, an identifier for the first base station.

32. Communication device according to Claim 24, wherein the request means is adapted to transmit, with said request, to the mobile station, an identifier for a source station which supplies, to the first base station, the message to be transmitted to the message destination station.

33. Device for communication between communication stations adapted to communicate with each other when at least one of said communication stations supplies a synchronisation signal, said station then functioning in mobile station mode and the stations not supplying a synchronisation signal but synchronising on a synchronisation signal transmitted by a station functioning in base station mode then functioning in mobile station mode, the device comprising:

- in a mobile station synchronised with a first base station, first means of receiving a message, adapted to receive a message coming from said base station,

- detachment and attachment means adapted to synchronise said mobile station with a second base station, without the two base stations synchronising with each other,

said transmission means also being adapted to transmit the message to said second base station when said mobile station is synchronised with said second base station.

34. Communication device according to Claim 33, wherein the transmission means is also adapted to transmit, to said first base station, a message accepting or refusing transmission of said message to the message destination station.

35. Communication device according to any one of Claims 24 and 33, wherein said transmission means is adapted so that said message represents traffic between the mobile stations synchronised on the first base station and the first base station.

36. Network, characterized in that it has at least two devices according to any one of Claims 24 and 33.

37. Telephone, characterized in that it has a device according to any one of Claims 24 and 33.

38. Photographic apparatus, characterized in that it has a device according to Claims 24 and 33.

39. Printer, characterized in that it has a device according to any one of Claims 24 and 33.

40. Scanner, characterized in that it has a device according to any one of Claims 24 and 33.

41. Camera, characterized in that it has a device according to any one of Claims 24 and 33.

42. Computer, characterized in that it has a device according to any one of Claims 24 and 33.

43. Facsimile machine, characterized in that it has a device according to any one of Claims 24 and 33.

44. Television receiver, characterized in that it has a device according to any one of Claims 24 and 33.

45. Audio/video player, characterized in that it has a device according to any one of Claims 24 and 33.

46. An information storage means which can be read by a computer or a microprocessor storing instructions of a computer program, characterized in that it makes it possible to implement a communication method according to any one of Claims 1 and 14.

47. An information storage means which is removable, partially or totally, and which can be read by a computer or a microprocessor storing instructions of a computer program, characterized in that it makes it possible to implement a communication method according to any one of Claims 1 and 14.

48. A computer program product, characterized in that it comprises software code portions for implementing a communication method according to any one of Claims 1 and 14.

49. Method of communicating between communication stations adapted to communicate with each other when at least one of said communication stations supplies a synchronisation signal, said station then functioning in base station mode, and the stations not supplying a synchronisation signal but synchronising on a synchronisation signal transmitted by a station functioning in base station mode then functioning in mobile station mode, wherein, for at least one communication to be effected between a source station and a destination station which is not synchronised with said source station, said source station performs:

- an operation of synchronisation with:
  - a base station with which said destination station is synchronised when the destination station is functioning in mobile station mode, or
  - with the destination station if it is functioning in base station mode, and
- an operation of communicating with the destination station.

50. Communication method according to Claim 49, wherein, as a preliminary to said synchronisation operation, said source station performs an operation of outward operating mode switching during which the source station passes from base station operating mode to mobile station operating mode.

51. Communication method according to Claim 50, wherein, as a preliminary to the operation of outward operating mode switching, the source station performs an operation of storing base station operating parameters.

52. Communication method according to Claim 50, wherein, as a preliminary to the outward operating mode switching, the source station performs an availability test operation during which it determines whether no communication is under way in the cell and performs the operation of outward operating mode switching only when no communication is under way in the cell.

53. Communication method according to Claim 50, wherein, following the communication operation, the source station performs an operation of return operating mode switching during which it changes from mobile station operating mode to base station operating mode.

54. Communication method according to Claim 53, wherein, during the operation of return operating mode switching, the base station operating parameters of the source station are restored to their value stored during the operation of storing base station operating parameters.

55. Communication method according to Claim 49, wherein, following the communication operation, the destination station performs a detachment and attachment operation during which the destination station synchronises with the source station, if the latter is functioning in base station mode, and, otherwise, with a base station with which the source station is synchronised.

56. Communication method according to Claim 49, wherein, following the communication operation, the destination station performs an operation of determining the need to change cell during which the destination station determines whether or not it is necessary for it to synchronise with the source station in a cell other than the one in which it is situated.

57. Communication method according to Claim 49, wherein, during the communication operation, the source station transmits to the destination station information representing a call from the destination station.

58. Method of communicating between communication stations adapted to communicate with each other when at least one of said communication stations supplies a synchronisation signal, said station then functioning in base station mode, and the stations not supplying a

synchronisation signal but synchronising on a synchronisation signal transmitted by a station functioning in base station mode then functioning in mobile station mode,

wherein, for at least one communication to be effected between a source station and a destination station, said destination station performs:

- an operation of receiving a message coming from the source station functioning in mobile station mode,

- an operation of synchronising with the source station functioning in base station mode, and

- an operation of communicating with the source station functioning in base station mode.

59. Communication method according to Claim 58, wherein the synchronisation operation includes an operating of switching into mobile mode and an operation of attachment with the source station.

60. Communication method according to Claim 58, wherein the synchronisation operation includes an operation of detachment from a base station and an operation of attachment with the source station.

61. A device for communicating between communication stations adapted to communicate with each other when at least one of said communication stations supplies a synchronisation signal, said station then functioning in base station mode, and the stations not supplying a synchronisation signal but synchronising on a synchronisation signal transmitted by a station functioning in base station mode then functioning in mobile station mode, wherein the device comprises, for at least one communication to be effected between a source station and a destination station which is not synchronised with said source station, in said source station:

- synchronisation means adapted to synchronise said source station with:

  • a base station with which said destination station is synchronised if the destination station is functioning in mobile station mode, or

  • the destination station if it is functioning in base station mode, and

- communication means adapted to communicate with the destination station.

- communication means adapted to communicate with the destination station.

62. Communication device according to Claim 61, further comprising, in the source station, a switching means adapted, prior to said synchronisation, to effect an outward operating mode switching so that the source station changes from base station operating mode to mobile station operating mode.

63. Communication device according to Claim 62, wherein the switching means is adapted, prior to the outward operating mode switching, to store the base station operating parameters.

64. Communication device according to Claim 62, wherein the switching means is adapted, prior to the outward operating mode switching, to determine whether no communication is under way in the cell and to effect outward operating mode switching only when no communication is under way in the cell.

65. Communication device according to Claim 62, wherein, following the communication of the message to the destination station, the switching means is adapted to effect a return operating mode switching so that the source station changes from mobile station operating mode to base station operating mode.

66. Communication device according to Claim 65, wherein the switching means is adapted, during the return operating mode switching, to restore the base station operating parameters of the source station to their stored value.

67. Communication device according to Claim 61, wherein the communication means is adapted to communicate information representing a call of the destination station.

68. A device for communicating between communication stations adapted to communicate with each other when at least one of said communication stations supplies a synchronisation signal, said station then functioning in base station mode, and the stations not supplying a synchronisation signal but synchronising on a synchronisation signal transmitted by a station functioning in base station mode then functioning in mobile station mode.

wherein the device comprises, for at least one communication to be effected between a source station and a destination station, in said destination station:

- means of receiving a message coming from the source station functioning in mobile station mode,

- means of synchronising with the source station functioning in base station mode, and

- means of communicating with the source station functioning in base station mode.

69. Network, characterized in that it includes at least two devices according to any one of Claims 61 and 68.

70. Telephone, characterized in that it includes a device according to any one of Claims 61 and 68.

71. Photographic apparatus, characterized in that it includes a device according to any one of Claims 61 and 68.

72. Printer, characterized in that it includes a device according to any one of Claims 61 and 68.

73. Scanner, characterized in that it includes a device according to any one of Claims 61 and 68.

74. Camera, characterized in that it includes a device according to any one of Claims 61 and 68.

75. Computer, characterized in that it includes a device according to any one of Claims 61 and 68.

76. Facsimile machine, characterized in that it includes a device according to any one of Claims 61 and 68.

77. Television receiver, characterized in that it includes a device according to any one of Claims 61 and 68.

78. Audio/video player, characterized in that it includes a device according to any one of Claims 61 and 68.

79. An information storage means which can be read by a computer or a microprocessor storing instructions of a computer program, characterized in that it makes it possible to implement a communication method according to any one of Claims 49 and 56.

80. An information storage means which is removable, partially or totally, and which can be read by a computer or a microprocessor storing instructions of a computer program, characterized in that it makes it possible to implement a communication method according to Claims 49 and 56.

81. A computer program product, characterized in that it comprises software code portions for implementing a communication method according to any one of Claims 49 and 56.

82. Method of communicating between communication stations adapted to communicate with each other when at least one of said communication stations supplies a synchronisation signal, said station then functioning in base station mode and the stations not supplying a synchronisation signal but synchronising on a synchronisation signal sent by a station functioning in base station mode then functioning in mobile station mode, wherein a first station of a first cell performs:

- an operation of determining a need for information on a second station, concerning a cell in which at least one third station is situated, and
- when such information is necessary, an operation of transmitting, to the second station, a message representing the cell in which at least one third station is situated.

83. Communication method according to Claim 82, wherein a third station is merged with the first station.

84. Communication method according to Claim 82, wherein, during the operation of determining the necessity for information, said first station determines that information is necessary when:

- it is functioning as a base station;
- it receives information intended for a station which is not synchronised with it.

85. Communication method according to Claim 84, wherein, during said transmission operation, the first station transmits, to the second station, a message representing a base station with which the third station has been synchronised.

86. Communication method according to Claim 82, further comprising a location table updating operation during which said first station

stores in memory, associated with a third station, an identifier of a station with which said third station is synchronised.

87. Communication method according to Claim 86, wherein said first station performs said updating operation when it receives, from a third station, a detachment message identifying a base station with which the third station will synchronise or indicating that the third station will function in base station mode.

88. Communication method according to Claim 86, wherein said first station performs said updating operation when it receives, from another first station, a message representing a base station with which said third station is synchronised.

89. Communication method according to Claim 82, wherein, during the operation of determining the necessity for information, said first station determines that information is necessary when:

- the first station is functioning as a base station,

- at least one mobile station has been synchronised with said first station and has synchronised with another base station or has switched into base station mode, and

- the first station switches into mobile station mode.

90. Communication method according to Claim 89, wherein, during said transmission operation, said first station transmits, to the third station, a message representing a base station with which the first station will synchronise.

91. Method of communicating between communication stations adapted to communicate with each other when at least one of said communication stations supplies a synchronisation signal, said station then functioning in base station mode and the stations not supplying a synchronisation signal but synchronising on a synchronisation signal sent by a station functioning in base station mode then functioning in mobile station mode, comprising an operation of updating a location table during which said first station stores in memory, associated with another station, an identifier for a station with which said other station is synchronised.

92. Communication method according to Claim 91, wherein said first station performs said updating operation when it receives a detachment

message identifying a base station with which another station will synchronise or indicating that said other station will function in base station mode.

93. Communication method according to Claim 91, wherein said station performs said updating operation when it receives the message representing a base station with which said other station is synchronised.

94. Device for communicating between communication stations adapted to communicate with each other when at least one of said communication stations supplies a synchronisation signal, said station then functioning in base station mode and the stations not supplying a synchronisation signal but synchronising on a synchronisation signal sent by a station functioning in base station mode then functioning in mobile station mode, comprising:

- means for determining the need to inform a second station, concerning a cell in which at least one third station is situated, and

- transmission means for transmitting, when such information is necessary, to the second station, a message representing the cell in which at least one third station is situated.

95. Device for communicating between communication stations adapted to communicate with each other when at least one of said communication stations supplies a synchronisation signal, said station then functioning in base station mode and the stations not supplying a synchronisation signal but synchronising on a synchronisation signal sent by a station functioning in base station mode then functioning in mobile station mode, comprising location table updating means for storing in memory, associated with another station, an identifier for a station with which said other station is synchronised.

96. Network, characterized in that it includes at least two devices according to Claim 94 or 95.

97. Telephone, characterized in that it has a device according to Claim 94 or 95.

98. Photographic apparatus, characterized in that it has a device according to Claim 94 or 95.

99. Printer, characterized in that it has a device according to Claim 94 or 95.

100. Scanner, characterized in that it has a device according to Claim 94 or 95.

101. Camera, characterized in that it has a device according to Claim 94 or 95.

102. Computer, characterized in that it has a device according to Claim 94 or 95.

103. Facsimile machine, characterized in that it has a device according to Claim 94 or 95.

104. Television receiver, characterized in that it has a device according to Claim 94 or 95.

105. Audio/video player, characterized in that it has a device according to Claim 94 or 95.

106. An information storage means which can be read by a computer or a microprocessor storing instructions of a computer program, characterized in that it makes it possible to implement a communication method according to Claims 82 and 91.

107. An information storage means which is removable, partially or totally, and which can be read by a computer or a microprocessor storing instructions of a computer program, characterized in that it makes it possible to implement a communication method according to any one of Claims 82 and 91.

108. A computer program product, characterized in that it comprises software code portions for implementing a communication method according to any one of Claims 82 and 91.